

ABSTRACT OF THE DISCLOSURE

A charged particle generating method in which mode is changeable between an ion generation mode and an electron generation mode. In the ion generation mode, a raw material is supplied to a tip end of a charged particle generating electrode through a raw-material passage formed in the charged particle generating electrode. A first electric field, in which the charged particle generating electrode is positive and the charged particle extract electrode is negative, is generated to emit ions from the raw material at the charged particle generating electrode. In the electron generation mode, supplying the raw material from the raw-material supply section is stopped. A second electric field, in which the charged particle generating electrode is negative and the charged particle extract electrode is positive, is generated to emit electrons from the raw material at the charged particle generating electrode.